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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,257	02/14/2001	Syuuji Matsuura	0033-0692P	9932

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EXAMINER	
RAMAN, USHA	
ART UNIT	**PAPER NUMBER**
2617	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/782,257	MATSUURA, SYUUJI	
	Examiner	Art Unit	
	Usha Raman	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 February 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *2-14-01; 9-25-01; 5-24-03; 5-24-05; 4-15-04*
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

   The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 6-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

   In regards to claim 6, it is unclear as to which node a "first voltage node" and a second voltage node applies (i.e. the "first node voltage" can correspond to node 4 or node 2, where a resistor is coupled the first and second transistors and a "second node voltage" can correspond to nodes 1 or 3, where the third biasing resistor can be element R4 or element R7, supplying a voltage higher than the first voltage node. See Figure 1 bellow for additional information). A bipolar transistor comprises three input/output terminals. Wherein the claim limitations recite "input electrode" and "output electrode", it is requested that specific input and output electrodes be labeled according to transistor junction labels (i.e., base, emitter, collector). Appropriate correction is requested in order clearly show the connections of the second bipolar transistor to the other elements.

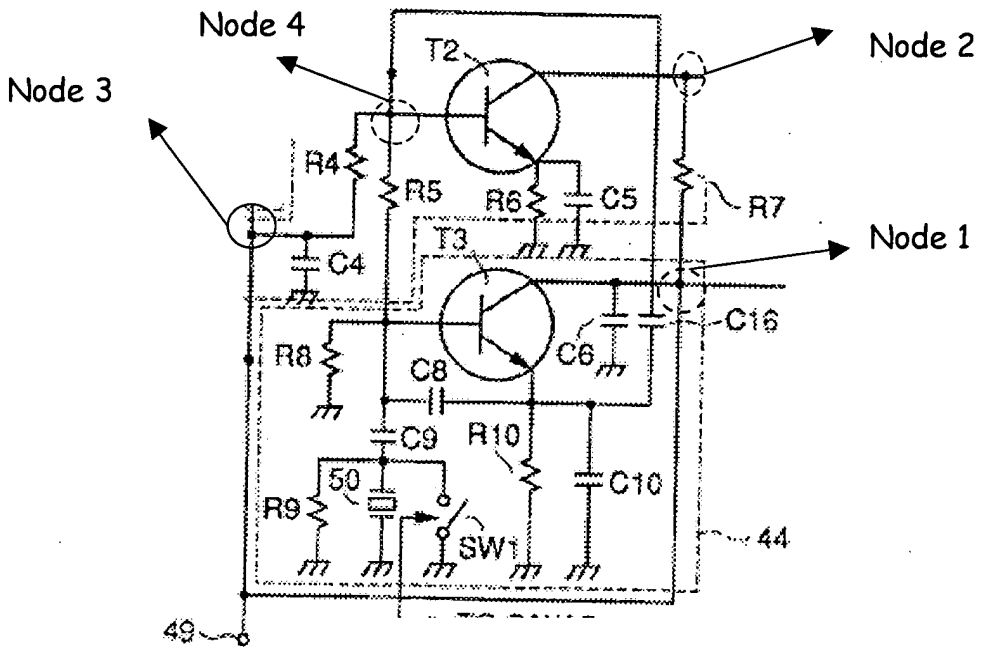

Figure 1

Claim 7 is rendered indefinite as it depends on indefinite claim 6.

Claim 8 is rendered indefinite as it depends on indefinite claim 6.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5, and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (JP 11127211 A) in view of Ruetz (US Pat. 5,155,453).

Regarding claim 1, Matsuura discloses cable modem tuner, comprising: a tuner circuit (3-14 and 18-23) taking and amplifying a signal (via amplifiers 6, 7 and 8) corresponding to a reception channel from input signals, and converting to an intermediate frequency signal of a first frequency band (via mixers 9, 11 and 13); and a down converter circuit (47 and 58) receiving the intermediate frequency signal of said first frequency band from said tuner circuit, and selectively outputting an intermediate frequency signal of said first frequency band (output 15) or a second frequency band lower than said first frequency band (output 35), a mixer circuit (49) for mixing the intermediate frequency signals of said first frequency band input (output of amplifier 48) to said down converter circuit with an output of said local oscillation circuit (50), and a filter circuit (51) receiving an output signal from said mixer circuit and passing a signal of a frequency corresponding to a set cut off frequency. See [0028], [0031], [0032] and figure 1 of Matsuura.

Matsuura does not disclose that the down converter circuit comprises a local oscillation circuit for generating an oscillation signal corresponding to said second frequency band in a first mode in which the intermediate frequency signal of said second frequency band is output, and stopping generation of said oscillation signal in a second mode in which the intermediate frequency signal of said first frequency band is output.

Ruetz discloses an oscillator means with dual output modes, that is controlled by an external control means, such that the oscillator generates an

oscillating output signals in a first, "normal" mode of operation and stops generating an oscillating output signal in a second "sleep" mode. See abstract and column 1, lines 37-41.

It would have been obvious to modify the down-converter means of Matsuura by using a dual-mode oscillator as taught by Reutz, in order to allow the mixer circuit to output a second frequency band (i.e. down-convert the first IF signal to a second frequency band) when the oscillator is in a first "normal" mode and allow the mixer circuit to output a the signal at a first frequency band when the oscillator is in a second "sleep" mode thereby allowing circuit 47 to be integral to circuit 58.

In regards to claim 2, the modified cable modem circuit comprises a tuner circuit including a first automatic gain control circuit (input 16 adjusting amplifiers 6-8) for adjusting amplitude of a signal corresponding to said reception channel to a prescribed level, said tuner further comprising a second automatic gain control circuit (input 17 adjusting amplifier 48) provided between said tuner circuit and said down converter circuit, for adjusting amplitude of the intermediate frequency signal of said first frequency band to a prescribed level. See [0028] and [0031] and figure 1 in Matsuura.

In regards to claim 3, the modified system does not disclose that the total gain attained by said first and second automatic gain control circuits is at least 55 dB. Examiner takes official notice that the AGC circuit can provide a gain of at

least 55 dB as adjusted by the AGC input of the amplifier. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system so that the gain of the AGC can be adjusted to output at least 55 dB, in order to provide a the signal at a strength required by the QAM demodulator circuit.

In regards to claim 4, the modified system comprises means for converting a non-parallel signal into a parallel signal (i.e. converting into I and Q signals) by using a phase shifter (56). See [0049]-[0052] and figure 11 in Matsuura.

In regards to claim 5, the second mode signal output comprises an amplified IF signal amplified in 48.

In regards to claim 13, the modified cable modem circuit comprises an upstream circuit (40) for transmitting a data signal to a cable television station; and a high pass filter (2) for introducing a multiwave down signal from said cable television station while removing said data signal. See [0022] in Matsuura.

In regards to claim 14, the examiner takes official notice that the DOCSIS standards require an upstream signal to be transmitted at minimum prescribed signal strength from the cable modem. Therefore, it would have been obvious to modify the system to include an AGC in the upstream circuit, in order to enable transmission of upstream signal at a minimum signal strength, in order to transmit signals at a signal level prescribed under DOCSIS standards.

In regards to claim 15, the modified system comprises receiving circuit including a branching circuit (input selection circuit 18-20 for selecting between UHF, high VHF and low VHF bands) branching and outputting said down data signal upon receiving a down data signal of a band different from said multiwave down signal from CATV station through a cable. See [0022] in Matsuura.

In regards to claim 16, the modified system comprises upstream circuit (40 contained in 60), tuner (3-14 and 18-23 contained in 62-67 and 69), high pass filter (2 contained in 61) and down converter (47, 58 contained in 68 and 70) contained in a shield case partitioned individually. See fig. 2 and [0036]-[0037].

5. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuura (JP 11127211 A) in view of Ruetz (US Pat. 5,155,453) as applied to claim 1 above, and further in view of Kral (US Pre Grant Pub. 2004/0166799).

In regards to claim 9, the modified system does not comprise a filter where the cut off frequency is set such that signal of the second frequency band is passed and the signal of said first frequency band is attenuated in said first mode, and the signal of said first and second frequency bands are passed in said second mode.

Kral teaches the method of varying a cut off frequency (i.e. a low pass filter can have a first cut off frequency higher than a second cut off frequency) in a low pass filter by closing switches to add or subtract additional impedances. See [0098] in page 8. It would have been obvious to one of ordinary skill in the art to use the teachings of Kral by using a switch in the low pass filter, wherein

closing the switch adds or subtracts additional impedances of the low pass filter, thereby varying its cut off frequency, in order to allow the pass signals only of the second frequency band (second cut off frequency) in a first mode and pass signals of the first and second frequency bands (i.e. first cut off frequency) in a second mode. The motivation is to shunt the high frequency signals of the first frequency band when outputting the lower frequency signals of the second frequency band.

In regards to claim 10, the modified system does not comprise a filter circuit with a switch, first inductor and capacitor in parallel and a second capacitor coupled between a first inductor and ground.

Examiner takes official notice that low pass filter comprising the structure of a first inductor in parallel with a second capacitor and a first capacitor coupled between the first inductor and a ground node were well known in the art at the time of the invention (see figure 1.21 in page 16 of Zverev).

It would have been obvious to one of ordinary skill in the art to further modify the system by using a low pass filter comprising an inductor in parallel with a capacitor and a second capacitor coupled between the inductor and ground node, and using a closed switch as taught by Kral in parallel with the inductor to "subtract" imepedances, thereby increasing the cut off frequency of the low pass filter.

In regards to claim 11, the system of Matsuura in view of Ruetz comprises a tuner circuit including a first automatic gain control circuit (input 16 adjusting

amplifiers 6-8, see Matsuura, figure 1) for adjusting amplitude of a signal corresponding to said reception channel to a prescribed level, said tuner further comprising a second automatic gain control circuit (input 17 adjusting amplifier 48) provided between said tuner circuit and said down converter circuit, for adjusting amplitude of the intermediate frequency signal of said first frequency band to a prescribed level. See [0028] and [0031] in Matsuura. The modified system further comprises means for converting a non-parallel signal into a parallel signal (i.e. converting into I and Q signals) by using a phase shifter (56). See [0049]-[0052] and figure 11 in Matsuura.

The modified system comprises a filter (51) for passing a signal corresponding to a set cut off frequency, but does not comprise a cut off frequency set such that signal of the second frequency band is passed and the signal of said first frequency band is attenuated in said first mode, and the signal of said first and second frequency bands are passed in said second mode.

Kral teaches the method of varying a cut off frequency (i.e. a low pass filter can have a first cut off frequency higher than a second cut off frequency) in a low pass filter by closing switches to add or subtract additional impedances. See [0098] in page 8. It would have been obvious to one of ordinary skill in the art to use the teachings of Kral by using a switch in the low pass filter, wherein closing the switch adds or subtracts additional impedances of the low pass filter, thereby varying its cut off frequency, in order to allow the pass signals only of the second frequency band (second cut off frequency) in a first mode and pass

signals of the first and second frequency bands (i.e. first cut off frequency) in a second mode. The motivation is to shunt the high frequency signals of the first frequency band when outputting the lower frequency signals of the second frequency band.

In regards to claim 12, the modified cable modem circuit houses the tuner circuit, the intermediate frequency AGC circuit, the down-converter and the signal converting circuit in one box. See Matsuura [0034] and [0059].

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Zverev, "Handbook of Filter Synthesis" (1967) discloses a low pass filter circuit, where a first inductor is in parallel with a first capacitor and a second capacitor is coupled between the first inductor and a ground node. See figure 1.21 on page 16. Bose (US Pat. 6,278,866) discloses well known usage of a filter with variable upper cut off frequency where in a second mode (the loud passages) a full range of frequency is passed and in a first mode, and in a first mode (soft passages) high frequency signals are attenuated. See column 1, lines 45-55.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Usha Raman whose telephone number is (571) 272-7380. The examiner can normally be reached on Mon-Fri: 9am-6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (571) 272-7331.

The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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